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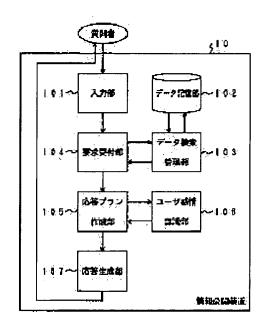
FUKUI MIYOSHI

(54) INFORMATION PUBLICATION DEVICE

(57) Abstract:

PROBLEM TO BE SOLVED: To provide an information releasing device capable of reducing the mental burdens of a user by realizing natural and smooth interaction for which the feeling of the user is considered.

SOLUTION: In this information publication device for inputting the data of plural forms including a text, sound, a picture and a pointing position, extracting the intention and feeling information of the user from the inputted data, preparing a response plan and generating a response to the user, a user feeling recognition part 106 for recognizing the feeling state of the user from the internal state of a response plan preparation part 105, the intention and feeling information of the user and the transition on a time base of interaction condition information including the kind of the prepared response plan is provided and the response plan preparation part 105 selects or changes a response strategy corresponding to the recognized result of the user feeling recognition part 106 and prepares the response plan matched with the response strategy.



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[Date of final disposal for application]

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[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

[Claim(s)]

[Claim 1] An input means to input the data of two or more gestalten including a text, voice, a picture, and a pointing position. An extraction means to extract an intention of a user and sentiment information from the data inputted by this input means. A response plan creation means to draw up a response plan based on the extraction result of this extraction means. A response generation means to generate the response to the aforementioned user based on this drawn-up response plan. It is information disclosure equipment equipped with the above. The internal state of the aforementioned response plan creation means, A feeling recognition means to recognize the aforementioned user's feeling condition in a user's intention row by which extraction was carried out [aforementioned] from transition on the time-axis of feeling information and dialog status information including the classification of a response plan by which creation was carried out [aforementioned] is provided. The aforementioned response plan creation means follows the recognition result of the aforementioned feeling recognition means, chooses or changes response strategy, and is characterized by drawing up the response plan corresponding to the response strategy.

[Translation done.].

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The functional block diagram of the information disclosure equipment of the 1st operation gestalt of this invention.

Drawing 2 The flow chart for explaining the operations sequence of the information disclosure equipment of the 1st operation gestalt.

[Drawing 3] Drawing showing the number-of-times sentiment model of a dialog of the 1st operation gestalt.

[Drawing 4] Drawing showing the number-of-times sentiment model of a dialog which considered the sentiment of the 1st operation gestalt.

[Drawing 5] Drawing showing the correction conditions of the 1st operation gestalt.

[Drawing 6] Drawing showing the algorithm which specifies the sentiment which the sentiment word of the 1st operation gestalt expresses.

[Drawing 7] Drawing showing an example of the dialog of the 1st operation gestalt.

[Drawing 8] Drawing showing the sentiment transition model of the 1st operation gestalt.

Drawing 9 Drawing showing the sentiment transition model of the 1st operation gestalt.

[Drawing 10] Drawing showing the sentiment transition model of the 1st operation gestalt.

[Drawing 11] Drawing showing the discourse changes model of the 1st operation gestalt.

Drawing 12] Drawing showing the sentiment correspondence table of the 1st operation gestalt.

[Drawing 13] Drawing showing the algorithm of evaluation of the user sentiment of the 1st operation gestalt.

[Drawing 14] Drawing showing the sentiment transition model of the 1st operation gestalt.

Drawing 15] The functional block diagram of the information disclosure equipment of the 2nd operation gestalt of this invention.

[Drawing 16] The functional block diagram of the information disclosure equipment of the 2nd operation gestalt.

[Drawing 17] The functional block diagram of the information disclosure equipment of the 2nd operation gestalt.

[Drawing 18] The functional block diagram of the information disclosure equipment of the 2nd operation gestalt.

Drawing 19 The flow chart for explaining the operations sequence of the information disclosure equipment of the 2nd operation gestalt.

[Drawing 20] Drawing showing an example of a response of the 2nd operation gestalt.

[Drawing 21] Drawing showing the dialog changes model of the 2nd operation gestalt.

[Drawing 22] Drawing showing the execution condition list of the 2nd operation gestalten.

[Drawing 23] Drawing showing the dialog history storage structure of the 2nd operation gestalt.

[Drawing 24] Drawing showing an example of an utterance intention of the 2nd operation gestalt.

[Drawing 25] Drawing showing an example of a demand of the user of the 2nd operation gestalt.

[Drawing 26] Drawing showing the keyword dictionary of the 2nd operation gestalt.

[Drawing 27] Drawing showing a semantic expression of utterance of the 2nd operation gestalt.

[Drawing 28] Drawing showing three shafts which constitute the sentiment space of the 2nd operation gestalt.

Drawing 29] Drawing showing the state where the sentiment name was assigned to the sentiment space of the 2nd operation gestalt.

[Drawing 30] Drawing showing the sentiment field table of the 2nd operation gestalt.

[Drawing 31] Drawing showing the state where non-language information was assigned to the sentiment space of the 2nd operation gestalt.

[Drawing 32] Drawing showing the response plan creation table of the 2nd operation gestalt.

[Drawing 33] Drawing showing the format of a response of the 2nd operation gestalt.

[Drawing 34] Drawing showing the example of response generation of the 2nd operation gestalt.

[Drawing 35] Drawing showing the format of a response of the 2nd operation gestalt.

Drawing 36] Drawing showing the format of the response which added the expression information on the 2nd operation gestalt.

[Drawing 37] Drawing showing the example of response generation which applied the attitude and the degree of intimacy of the 2nd operation gestalt.

[Drawing 38] Drawing showing the response strategy of the 2nd operation gestalt.

[Drawing 39] Drawing showing an example of the response example dictionary of the 2nd operation gestalt.

[Drawing 40] Drawing showing the pattern of the expression of the picture of the agent of the 2nd operation gestalt.

[Drawing 41] Drawing showing the example of response generation after sentiment recognition of the 2nd operation gestalt.

[Drawing 42] Drawing showing an example of the application plan of the 2nd operation gestalt.

[Drawing 43] Drawing showing the response strategy of the 2nd operation gestalt.

[Description of Notations]

10 [-- The data-storage section, 103 / -- Data retrieval Management Department,] -- Information disclosure equipment, 101 -- The input section, 102 104 [-- User sentiment recognition section,] -- The demand receptionist section, 105 -- The response plan creation section, 106 107 [-- The input section, 202 / -- Intention sentiment information extraction section,] -- The response generation section, 20 -- Information disclosure equipment, 201 203 [-- The response generation section, 206 / -- The user information-storage section, 207 / -- The history storage section, 208 a-c / -- The data communication section, 209 a-c / -- A process, 210 / -- The dialog Management Department, 211 / -- The reference section, 212 / -- Data-storage section.] -- The sentiment recognition section, 204 -- The response plan generation section, 205

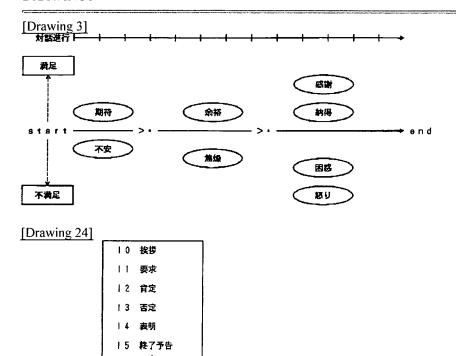
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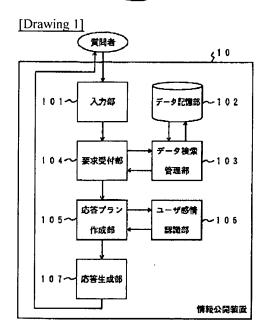
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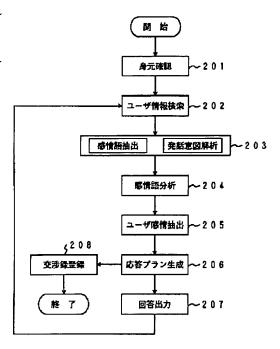
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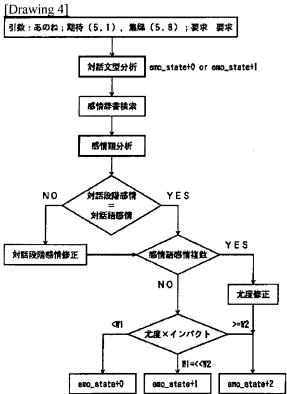
DRAWINGS





[Drawing 2]





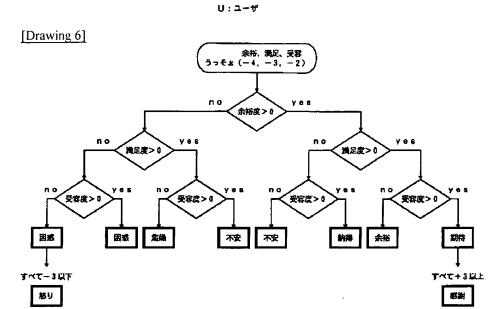
[Drawing 5]

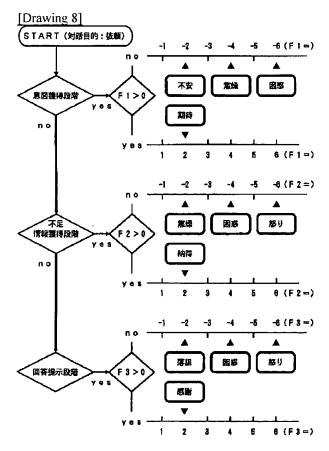
発話意図		修正条件			
エージェント	ューザ	余裕 満足 受容		受 容	
	要求	– 2	-1	1	
拒否	否定	– 2	– 2	– 2	
	肯定	0	-1	+1	
	要求	- 1	- 2	-1	
謝雅	否定	– 2	- 2	– 2	
	肯定	0	-1	+ 2	

[Drawing 7]

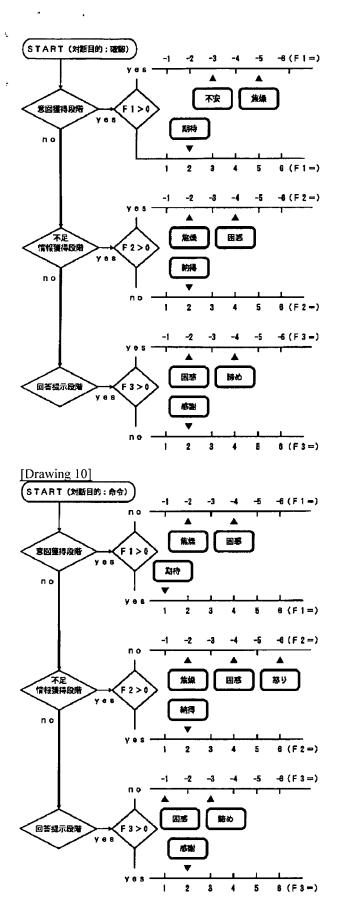
S: 加藤さん、こんにちは。どうしたの?
U: 山本さんの夏休みの予定だけど、テニス合宿は入ってるよね?
S: ちょっと待ってね。テニス合宿の予定は、入ってないみたい。
U: 「うっそぉ。」 じゃぁ、夏休みの予定を教えてよ。
S: ちょっと付ってね。夏休みの予定は、海外旅行です。
U: なるほど。

S:システム

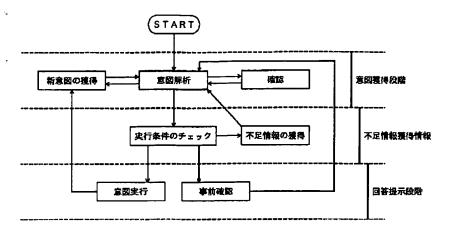




[Drawing 9]



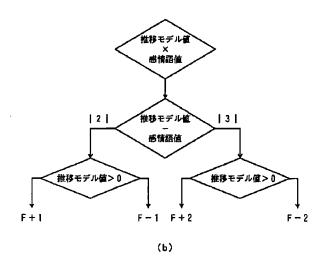
[Drawing 11]



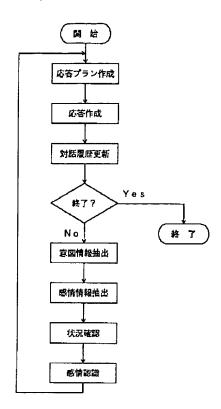
[Drawing 12]

期待	余裕	納得	應附
1	2	3	4
不安	焦燥	困惑	怒り
		– 3	4

(a)

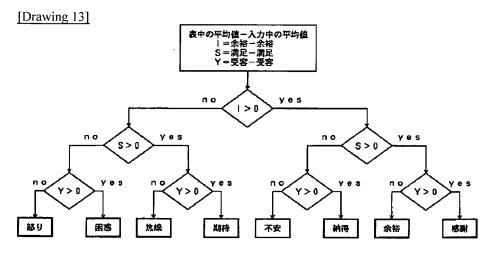


[Drawing 19]

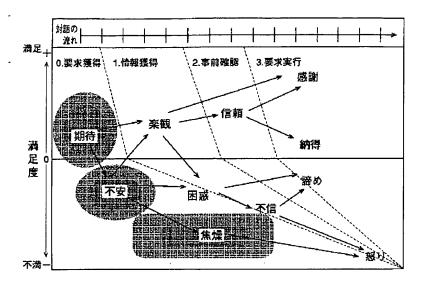


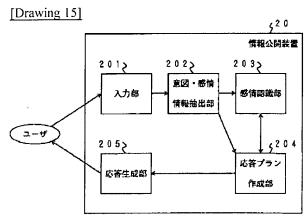
[Drawing 30]

Dian	m <u>s 501</u>		
		領域	
感情名	〔快-不快〕	〔受容·拒否〕	〔余裕-切迫〕
期待	3>x>-1	3>y>-3	1>z>-3
不安	1>x>-3	3>y>-3	1>z>-3
焦燥	1>x>-4	1>y>-4	-2>z



[Drawing 14]



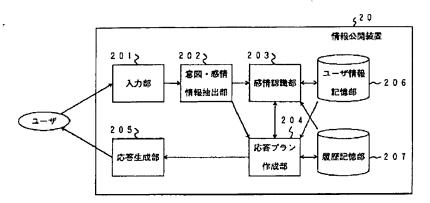


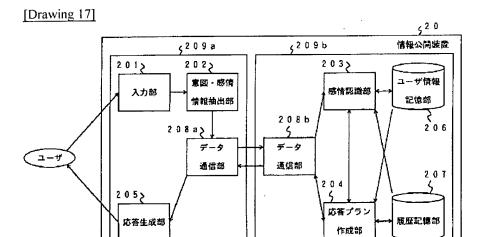
[Drawing 25]

要求対象	要求内容						
スケジュール	参照	変更	追加	削除			
文書	参照	変更	追加	削除			
情報	参照	変更	追加	削除			
伝言	参照	変更	追加	削除			
履歷	参照	変更	追加	削除			
	解答						
		説明					
	待機						
		直接対話					

[Draw	ing 28]	
	[快-不快]	ユーザの予測 システムの応答内容 実行結果
	【受容-拒否】	システム自身 へのユーザの憩度
	[余裕-切追]	ユーザの要求達成欲

[Drawing 16]

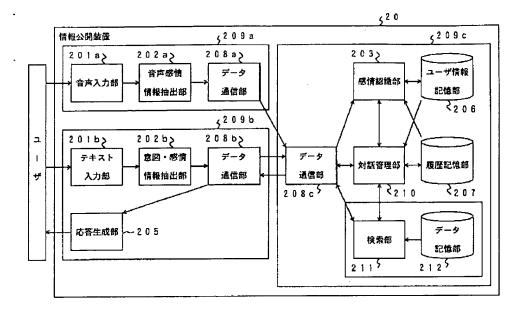




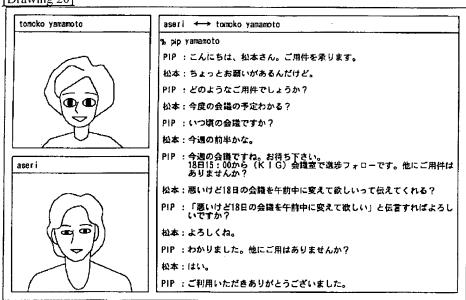
[Drawing 22]

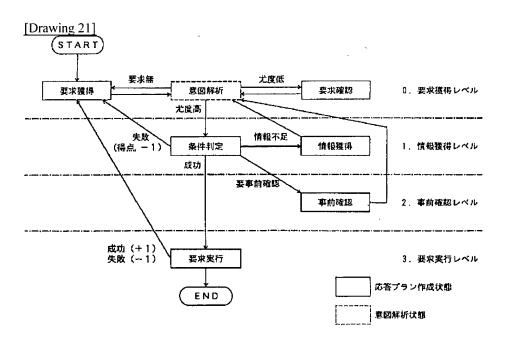
要求種類	尤度	実行条件	避移先	優先順位
スケジュール検索	0.4	投索条件=x x∈{date} or 投索条件=x,y x,y∈{act,title,place,week.month}	情報獲得	1
伝賞	0.6	伝言内容≠ ø	情報獲得	1
	,	ユーザの確認=Yes	事前確認	2
終了	0.7			
直接対話	0.9	対話相手の状況=OK	要求獲得	1
		ューザの確認=Yes	事前確認	2
		\$.		

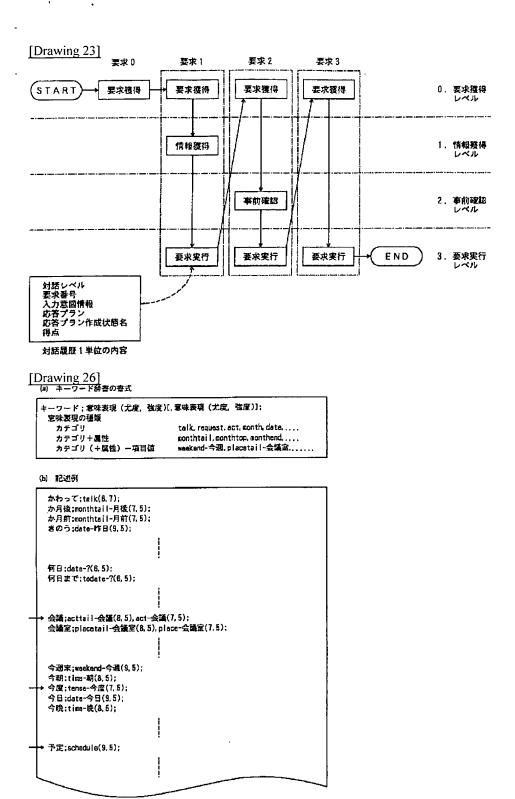
[Drawing 18]









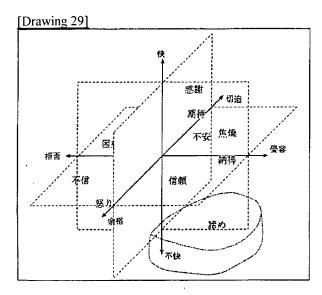


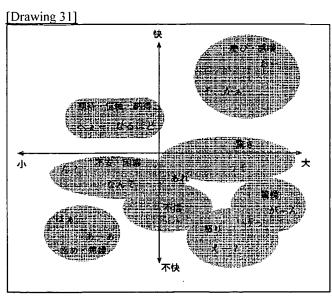
[Drawing 27]

(a) 入力意味表現の書式例

発話番号、文番号、文型、光度、強度、意図権類、意図内容、項目種類、項目名、場所、参加者、時制、開始月、開始日、開始週、開始曜日、開始時刻、終了月、終了日、終了週、終了曜日、終了時刻、その他、

(b) 入力文の変換例





	応答プラン		テキストの	花 含文例
作成状態	意図複類	意図内容	平叙文	疑阅文
START	greeting		こんにちは	
	request	order	ご用件を承ります	ご用件はなんですか
	suggest	8858398		ご伝音を承りましょうか
要求查得		schedule		スケジュールを呈示しましょ
				うか
		talk		直接お話になってはどうでし
				ょうか
	confuse		おっしゃることがわかりません	
	confirm	measage	ご伝言ですね	ご伝言を残されたいのですか
		sohedule	スケジュールですね	スケジュールをお尋ねですか
要求確認		state	現在の状況ですね	現在の状況をお尋ねですか
25-1K04E23		talk	直接話をなさるのですね	直接話をなさりたいのですか
		quit	ご用はお済みですね	ご用はお済みですか
	chime		そうですか	
情報選得	request	(nossage	ご伝言を乗ります	ご伝言はなんですか
INTRANST		schedule	日時をご入力ください	いつの会議ですか
	confirm	message	ご伝言は~~ですね	~~~と伝えてよいでしょうか
事前確認		schodule	作品の会議ですわ	昨日の会議ですか
		talk	本人と回線を結びますね	本人と直接話をしていただけ
				ますか
	request	wait	少々お待ち下さい	
	accept	пезанде	承知いたしました	
		schedule	探してみます	
		talk	今連絡をとります	
	answer	schedule	赤羽です	
要求実行		state	ただいは会議中です	
	SOF IV		申し訳ございません	
	reject	schedul s	スケジュールがみつかりません	
		state	残念ながらわかりません	
j		talk	連絡がとれません	
	goodbye		ありがとうございました	
_			لـ ا	
				~

[Drawing 33]

ID, ID, 1	pattern, time	s, intent, request, other.
発話番号, 文	多号,文型,	回數,篡四種類,意図內容,項目.
意図種類	accept, answ	er, chime, confirm, confuse, goodbye, greeting,
	reject, requ	est, sorry, suggest, thanks
意図内容	schedule, ta	lk, state, message, order, wait,
文型	疑問、平叙、	••••
項目表記方法		(SI
時刻の表記	00:mm	15:15
質問箇所	?	date=?
付加情報	-	山村-TL&白石-所袋
複数表記	&	山本8佐藤

[Drawing 35]

(a) 応答文例辞書の書式例

```
intent(request, pattern[, other]):sentence;
意図種類 意図内容 文型 項目(必要があれば) 例文
```

(b) 辞書の記述例

request(schedule, questionable, act, date=?);いつ頃の\$actですか; request(schedule, questionable, act, palce=?); どこで行われた\$actでしょうか; request(schedule, questionable, act, time=?);\$actの開始時刻はわかりますか;

[Drawing 34]

- 1, 1, 平叙, 0, greeting, . , 1, 2, 平叙, 0, request, order, 生成文1=こんにちは、松本さん。ご用件を承ります。
- 2.1, 疑問, 0, request, order, , 生成文 2 = どのようなご用件でしょうか? ←
- 3, 1, 疑問, 0, request, schedule, act=会議&date=?, 生成文3=いつ頃の会議ですか?
- 4, 1, 平敏, 0, confirm, schedule, act=会議&week=今通-前半, 4, 2, 平敏, 0, request, wait, .
- 4, 3, 平叙, 0, answer, schedule, place=A会議室&month=7&date=18&time=15:00&title=進步フォロー,
- 4.4. 疑問, 1, request, order..
 生成文4 = 今週前半の会議ですね。お待ち下さい。
 18日15:00からのA会議室で進渉フォローです。他にご用件はありませんか? ←
- 5.1. 疑問, 0. confirm, message, title=悪いけど18日の会議を午前中に変えて欲しい。 生成文5 = 「悪いけど18日の会議を大午前中に変えて欲しい」と伝言すればよろしいですか?
- 6, 1, 平叙, 0, accept. message.,
- 6, 2, 疑問, 2, request, order, , 生成文 6 = わかりました。他にご要はありませんか? ←
- 7.1. 平叙. (). goodbye, . . 生成文 7 = ご利用いただきありがとうございました。

[Drawing 36]

ID, ID, pattern, times, N. N. intent, request, other, ******* •••• ***** 発話番号,文番号,文型,函数,報密度,態度,意図種類、意図内容,項目, 意図種類 accept, answer, chime, confirm, confuse, goodbye, greeting. reject, request, sorry, suggest, thanks, . . . 意図内容 schedule, talk, state, message, order, wait, 文型 questionable, affirmative 項目表記方法 00:неп 15:15 時刻の表記 質問箇所 date=? 付加情報 山村-TLB白石-所長 複数表記 山本8件薛

[Drawing 38]

教略	感情	変更前の条件	変更	効果
かしこまる	怒り 納得 不		根密度-1, 態度+1 観密度-1, 態度+1 観密度-1, 態度+1	+++
あらたまる		2 < 報密度、整度 < 3 1 < 報密度、数度 < 3 報密度 < 3,數度 < 3	修度+1 修度+1 修度+1 修度+1 修度+1 使度+1	++++++
1765	製制 材存 -	0 < 報密度 < 3、 1 < 態度 0 < 報密度 < 3、 0 < 態度 < 3		+1+1
うちとける	感謝 期待 無燥	2 < 収密度 < 4, 0 < 態度 < 3 0 < 収密度 < 4 2 < 収密度 , 0 < 態度 < 3	報密度+1, 態度-1 報密度+1 態度-1	++++

[Drawing 37]

- 1,1,平叙,0,4,0,greeting,.. 1,2,平叙,0,4,0,request,order,, 生成文1=佐藤さん、こんにちは。要件をどうぞ。
- 2,1,疑問,0,4,0, request,order.. 生成文2=なんでしょ?
- 3, 1, 疑問, 0, 4, 0, request, schedule, act=会議&date=?. 生成文 3 =いつの会議?

- 4.1. 平叙.0.4.0. confirm, schedule, act=会議&week=今週-前半. 4.2. 平叙.0.4.0. request, wait,. 4.3. 平叙.0.4.0. answer, schedule, place=A会議室&month=7&date=18&time=15:00&title=進渉フォロー.
- 4, 4, 段問, 1, 4, 0, request, order. . 生成文 4 = 今週前半の会議ね。ちょっと持ってて。 18日15:00から A 会議室で遊渉フォローだよ。他に何かない?
- 5,1, 疑問,0,4,0, confirm message, title=思いけど18日の会議を午前中に変えて欲しい。 生成文5 = 「悪いけど18日の会議を午前中に変えて欲しい」と伝えるのね?
- 6,1. 平叙,0,4,0, accept, message,, 6,2. 疑問,2,4,0, request, order,, 生成文 6 O K。他に用はない?
- 7.1, 平叙, 0, 4, 0, goodbye, . . 生成文 7 = じゃ、またね。

[Drawing 39]

```
answer(schedule, affirmative, place, act, 親密度=0-1, 態度=0); $placeで$actだって; answer(schedule, affirmative, place, act, 親密度=0-1, 態度=0-3); $placeで$actです; answer(schedule, affirmative, place, act, 親密度=0-1, 態度=2-3); $placeで$actとなっておりますが; answer(schedule, affirmative, place, act, 親密度=0-1, 態度=0-3); $placeで$actとなっておりますが; answer(schedule, affirmative, place, act, 親密度=2-4, 態度=0); $placeで$actとなっております; answer(schedule, affirmative, place, act, 親密度=2-4, 態度=0-3); $placeで$actとなっております; answer(schedule, affirmative, place, act, 親密度=2-4, 態度=2-3); $placeで$actとなってます; greeting(affirmative, 親密度=1, 態度=1-3, 昼); こんにちは; greeting(affirmative, 親密度=1, 態度=1-3, 昼); こんにちは、greeting(affirmative, 親密度=2-3, 態度=1-3, 昼); こんばんは; greeting(affirmative, 親密度=2-3, 態度=1-3, 夏); こんばんは, $userさん; greeting(affirmative, 親密度=2-3, 態度=2-3, 殷知); $placeで$actとなっております; greeting(affirmative, 親密度=2-4, 態度=0-3, 朝); $placeで$actとなっております; greeting(affirmative, 親密度=2-4, 態度=0-3, 朝); $placeでは、こんにちは; greeting(affirmative, 親密度=2-4, 態度=0-1, 夜); $placeでは、こんにちは; greeting(affirmative, 親密度=3-4, 態度=1-3, 夜); $placeでもん、こんにちは; greeting(affirmative, 親密度=4, 態度=1-3, 夜); $placeでもん、こんにおは; greeting(affirmative, 魏密度=4, 態度=1, 朝); $placeでもん、こんにおは; greeting(affirmative, 魏密度=4, 態度=1, 未知); $placeでもん、こんにおは; greeting(affirmative, 魏密度=4, 未知); $placeでもん、はじめまして; greeting(affirmative, 魏密度=1, 未知); $placeでもん、はじめまして; $place to the place to the pla
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[Drawing 40] 親密度 0 2 3 応答 reject sorry confuse request answer thanks confirm goodbye freeting reject sorry confuse answer thanks

[Drawing 41]

2, 1, 疑問, 0, 2, 1, request, order, 感情一期待, 生成文2=ご用は何でしょうか?

3, 1, 疑問, 0, 2, 1, request, order, 感情=不安,

生成文3=山本のスケジュール参照、山本へのご伝言、山本との直接対話の取り次ぎなどが可 能ですが、どれにいたしましょうか?

4.1.疑問. 0.2.1, request, order. 感情=因率,

生成文4=ご要益は、スケジュール、伝言、直接対話のうちのどれですか?

5, 1, 疑問, 0, 2, 1, request, order. 感情=焦燥.

生成文5=終了、スケジュール、伝言、直接対話のどれかを入力していただけませんか?

6, 1, 疑問, 0, 2, 1, request, orter, 感情中怒り,

生成文6=申し訳ありませんが、ご用件が理解できません。「直接対話」とご入力くだされば 山本が対応いたしますが?

[Drawing 42]

ID, ID, pattern, times, N, N, N, N, N, intent, request, other.

秦括香号,文香号,文型,回数,冗長性,同測性,正確性,便位性,情報公開性」,急回種類,意図内容,項目,

応答方針の違いによる応答生成例

5,1, 平叙,0, 3,3,5,3,3, reject, talk, reason=特許執筆, 生成文5=申し駅ありませんが、山本は特許執筆のため対応が出来ません。

5.1. 平叙.0. [4.3.1,3.1], reject, talk, reason=特許執筆, 生成文5=申し訳ありませんが、山本はちょっと席をはずしております。

5, 1, 平収, 0, 3, 0, 5, 3, 3, reject, talk, reason=特許教筆, 生成文 5 =山本は特許教筆のため対応が出来ません。

5, 1, 平叙, 0, 5, 4, 1, 2, 3, raject, talk, reason=特許教等。 生成文5 = 陳に申し訳ありませんが、山本は現在特許執筆の棒切りが迫っており対応が出来ないようです。

5.1. 平叙.0. 5.4.1.4.3. reject, talk, reason=特許教業, 生成文5 =悪いけど、山本は今すっご一く忙しくて対応できないみたいなの。

5, 1, 平叙, 0, [1, 1, 3, 5, 3], reject, talk, reason=特許執筆. 生成文 5 =山本はそんな暇ないって。

[Drawing 43]

UP	尼香町	題情	条件	効果
西接效話	山本さんに代わりましょうか?	怒り	親密度>2,態度<2	+2
起棄		焦り	紀密度 > 1	+ 3
	:	-	:	:
感情磁認	怒ってるの?	839	報密度> 2,態度< 1	+ 2
	急いでらっしゃるんですか?	焦り	親密度>2	+
	:		_ :	
原因復得	なぜ怒ってらっしゃるの?	数り	銀密度>3,態度<2	+ 2
	:	:	•	"
党替	失礼いたしました。PIP-Bに代わります。	ほり	親密度 < 2	+1
	:	:	:	:
MIT	申し訳ありません。	怒り		+1
	:	:_		:
克图图	スケジュールを調べたいんですよね?	怒り		+1
	:	:		:
状况説明	実は来月の予定はまだ入力されていません。	怒り	級密度>1	+1
	:	:	:	:
算步	わかりました。明日の予定を変更しましょう。	189	般密度>3.態度>?	+1
	:	:		:
代替案	再来週のスケジュールを調べてみましょうか?	ねり	級密度>1	+1
提案	1	:		:
関連清報	明日は午前中ならあいているようです。	思り	規密建>2	+1
提供	:	[-	:	<u>:</u>
同盟	山本のいい加速さには私もあまれます。	怒リ	製密度>3、態度<3	+1
	:	:	:	<u> :</u>
同情	それはお困りでしょう。	怒り	親密度>1,態度<3	+1
	•	-:_	:	<u>:</u>
受客	事情はわかりました。	あり	態度<3	+1
	:	<u>:</u>	:	Ŀ
対勧速	来退のスケジュール一覧を表示します。	怒り		+1
	:	:	<u>:</u>	<u> </u> :
外話或連	来週の何曜日かわかりませんか?	怒リ	穀密度>2,放度<3	<u> – 1 </u>
	:	<u> </u>	<u> </u>	<u> </u> :
泣き官	私も困っているんです。	怒り	穀密度>3,態度<3	- 1
	:	:	:	<u> :</u>
沈黙		怒り	態度< 2	-1
	:	:		:
聞き直り	わからないことは、おこたえできません。	越り	親密度<1,鄭度<2	- 2
	:	1:	:	:
無視	他にご用は?	怒り	穀密度<1, 態度<1	- 2
	:	T:	:	;

[Translation done.]